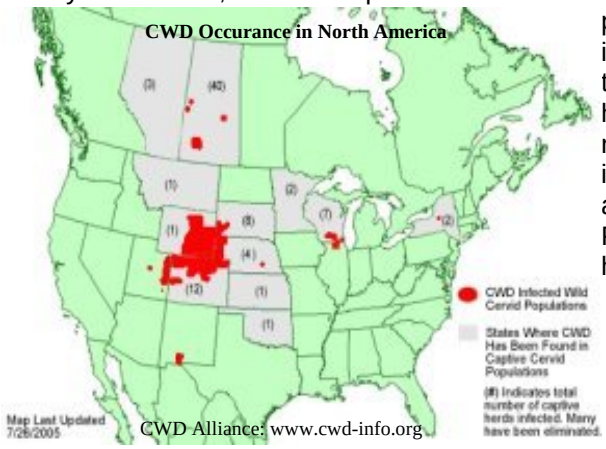
Michigan CWD Brochure
Updated: August 9, 2005

Chronic wasting disease (CWD) is a transmissible spongiform encephalopathy (TSE) first diagnosed in a research facility in Colorado in 1967. It has since been diagnosed in wild mule deer, white-tailed deer and elk. CWD has been discovered in free-ranging cervids in Colorado, New Mexico, New York, Nebraska, South Dakota, Wisconsin, Wyoming and the Canadian province of Saskatchewan. The disease has also been diagnosed in captive cervids in Colorado, Nebraska, New York, South Dakota, Montana, Oklahoma, Kansas and Saskatchewan and Alberta, Canada.

CWD is a neurologic disease of elk and deer characterized by loss of body condition, behavioral abnormalities, and always resulting in death. Currently, there is no reliable live animal testing available for diagnosing CWD, nor is there a treatment available.

Prevalence

Since free-ranging deer and elk in north-central Colorado and southeast Wyoming have been surveyed for CWD, the annual prevalence rates have ranged from 1 to 15%. The overall prevalence rate of CWD in the endemic areas is approximately 5% in mule deer and less than 1% in elk. Prevalence in some mule deer hunt areas is as high as 15%. The prevalence rate is greater in deer 2 ½ years and older and in elk 1 ½ years and older. There does not appear to be a gender prevalence difference. Prevalence rates in other CWD positive states have been extremely low.



Prion

Prions are the disease-causing agents associated with CWD and all of the TSE diseases. Prions are mutant versions of proteins that occur normally in the body. The mutant proteins are found on the membranes of nerve cells (neurons) and have the capabilities of transforming other proteins into their own image. Prions are not sensitive to routine sterilization techniques. The only effective techniques are those used to break down proteins such as dilute bleach solution, formic acid (brain tissue preparations for 1 hour), and incineration (at least 1,500 degrees F). They are not destroyed by cooking, formaldehyde, alcohol, or UV light.

Clinical Signs

CWD in deer and elk is characterized by loss of body condition (emaciation), drooling, behavioral abnormalities, and death.

Testing

There is currently no laboratory test available for the disease in a live animal therefore CWD is diagnosed through various techniques on dead animals. The screening test used by the Michigan Department of Natural Resources (MDNR) is Bio-Rad Laboratories- ELISA, a CWD assay (performed by Michigan State University's Diagnostic Center for Population and Animal Health, DCPAH). The ELISA will detect abnormal prion proteins if they are present in a sample. If inconclusive results are received for a sample twice, it is given an immunohistologic examination to confirm a result.

Treatment

There is no treatment for a deer or elk that has CWD. An animal displaying clinical signs consistent with CWD should be euthanized. Removing the animal may help prevent the spread of the disease.

Transmission: Animal to Animal

Transmission of CWD is possible in species with closely related proteins, thereby being able to exchange prions and cause disease. It is not likely to jump the species barrier. There is no evidence at this time that CWD can be naturally transmitted to livestock or animals other than deer and elk. In deer and elk, the causal agent of CWD is transmissible from infected to uninfected individuals. Both circumstantial and experimental evidence implicates an animal to animal form of transmission. This occurs via horizontal or lateral (contact between adult animal and adult animal, contamination of feed or water sources with saliva, urine, and/or feces, or contact with an infected facility or area), and more rarely as vertical or maternal (mother to offspring via contact).

Once natural transmission occurs, a minimum incubation period (the time from infection to observance of clinical signs) of 18 months is required between exposure to the causal agent and development of the disease. In captive cervid herds a minimal incubation period of 18 to 20 months for mule deer and 18 to 36 months for elk was observed.

Transmission: Animal to Human

To date, there is no evidence that CWD can be naturally transmitted to humans or to animals other than deer and elk. There is no evidence that the agent that causes CWD occurs in the meat. Proteins differ from one species to another therefore prions are unlikely to prosper in a new species. There is a "substantial barrier" to CWD transmission between animals and people.

Supplemental Feeding

Providing a supplemental food or water source could increase the likelihood of transmitting this as well as other diseases. It is suspected that if CWD is transmitted horizontally (animal to animal) either by direct contact or environmental contamination then artificial feeding stations for wild cervids could be accelerating the problem on a local level.

Michigan Surveillance

Michigan has conducted surveillance for CWD in free-ranging white-tailed deer, elk, moose, and in captive cervids. In 1998, the Michigan Department of Natural Resources (DNR) tested 459 free-ranging white-tailed deer for CWD from the northeast Lower Peninsula. From 2002 to 2004, 16,849 deer, 324 elk, and 20 moose have been tested. In addition, targeted surveillance has been conducted on cervids displaying symptoms consistent with CWD. The majority of samples were obtained through hunter harvested animals. All samples thus far have tested negative for the disease.

Approximately 1,000 deer and 100 elk will be tested for CWD in 2005. The surveillance of free-ranging animals will coordinate with efforts to increase surveillance of privately owned cervids by the Michigan Department of Agriculture (MDA), and must be practical in terms of manpower, money and laboratory capacities.

CWD Prevention

CWD has not been found in Michigan.

Michigan is taking several steps to prevent the occurrence of CWD in the state. The importation of captive cervids has been banned. A contingency plan to deal with CWD in the event of its discovery in Michigan currently has been developed by state scientists and public health officials. The DNR and MDA are working to increase the level of public education and awareness of the disease through a chronic wasting disease report now available on the Internet, and by educating hunters at public meetings and appearances.

According to public health officials, there is no evidence that CWD can be naturally transmitted to humans, or to animals other than deer and elk. Although there is no evidence that chronic wasting disease affects humans, DNR advises hunters to take simple precautions with the carcass of a deer or elk taken in areas where the disease has been found:

- Wear rubber gloves when field dressing carcasses, minimize handling brain or spinal cord tissues and wash hands thoroughly afterwards.
- Hunters should bone out carcasses or at least avoid consuming brain, spinal cord, eyes, spleen and lymph nodes of harvested animals.
- Hunters should not handle or consume wild animals that appear sick or act abnormally, regardless of the cause.

If a deer or elk is observed exhibiting clinical signs of CWD, particularly poor physical condition, behavioral changes such as loss of fear and incoordination, contact the RAP Line at 1-800-292-7800.

For questions about Chronic Wasting Disease: MDNR Wildlife Disease Laboratory- (517)336-5030
TYY-hearing impaired...711 (Michigan relay center)

Recommended CWD websites:
Michigan Emerging Disease Issues Website: www.michigan.gov/chronicwastingdisease/
CWD Alliance: www.cwd-info.org
Wisconsin DNR: www.dnr.state.wi.us
CWD web discussion forum: www.michigan-sportsman.com/forum/